

Mineral Industry Surveys

For information, contact:

Donald W. Olson, Abrasives Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-7721, Fax: (703) 648-7757
E-mail: dolson@usgs.gov

Monica D. Zeigler (Data)
Telephone: (703) 648-7981
Fax: (703) 648-7975
E-mail: mdzeigler@usgs.gov

Internet: <http://minerals.usgs.gov/minerals>

MANUFACTURED ABRASIVES IN THE FIRST QUARTER 2010

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

The United States and Canadian combined production during the first quarter of 2010 was estimated to be 5,000 metric tons (t) of regular-grade crude fused aluminum oxide with an estimated value of \$800,000, which was essentially unchanged in quantity and value from that of both the first and fourth quarters of 2009. One company, operating one plant in Canada and one in the United States, produced fused aluminum oxide. These production figures have been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide during the first quarter of 2010 were 20,300 t valued at \$11.3 million, or an average of \$556 per ton. About 85% of the imports came from China, 8% from Canada, 4% from Venezuela, and 3% from other countries. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of ground and refined fused aluminum oxide for the first quarter of 2010 were 7,950 t valued at \$11.3 million, or an average of \$1,420 per ton.

U.S. exports of crude fused aluminum oxide for the first quarter of 2010 were 4,500 t. These exports were valued at \$13.8 million, or \$3,080 per ton. Canada received 33% of the exports that were shipped; Germany, 18%; Mexico, 16%; United Kingdom, 9%; Korea, 7%; South Africa, 4%; and others, 12%. U.S. exports of ground fused aluminum oxide for the first quarter of 2010 were 429,000 t valued at \$182 million, or \$425 per ton. Canada received 39% of the exports that were shipped; Iceland, 15%; Ukraine, 13%; Netherlands, 12%; Georgia, 7%; and others, 13%.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production of abrasive-grade silicon carbide during the first quarter of 2010 was estimated to be 10,000 t, with an estimated value of \$7.4 million, which was essentially unchanged in quantity and value from that of both the first and fourth quarters of 2009. These production figures have been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide during the first quarter of 2010 were 14,900 t valued at \$8.10 million; imports from China alone were 11,700 t valued at \$6.68 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$449 per ton; the average price of Chinese crude was \$570 per ton. U.S. imports of ground and refined silicon carbide for the same period were 8,940 t valued at \$18.9 million, or an average of \$2,110 per ton. During the first quarter of 2010, China accounted for 79% of the crude material and 33% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the first quarter of 2010 were reported to be 5,400 t with a value of \$7.35 million. First quarter exports of ground and refined silicon carbide were 1,130 t valued at \$5.12 million. About 99% of the crude material was shipped to, in decreasing order of quantity, Norway, Germany, Mexico, and Japan. About 90% of the refined material was shipped to, in decreasing order of quantity, Canada, Mexico, Japan, and Germany.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the first quarter of 2010, five companies produced 39,600 t of steel shot and grit, a 2% decrease compared with that of the same period in 2009. At least one of the companies produced shot and grit from reclaimed material. Total first quarter 2010 production was valued at \$19.2 million, or an average of \$485 per ton. Total production in 2009 was 137,000 t valued at \$64.9 million. Total production in 2008 was 210,000 t valued at \$98.1 million.

Shipments of steel shot and grit in the first quarter of 2010 were 43,400 t valued at \$25.6 million, or an average of \$591 per ton, compared with shipments during the first quarter of 2009, which were 37,300 t valued at \$17.0 million for an average of \$456 per ton.

During the first quarter of 2010, five companies produced 480 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.84 million.

Imports of all types of metallic shot and grit during the first quarter of 2010 were 11,700 t valued at \$5.25 million for an average of \$450 per ton, compared with imports during the first

quarter of 2009, which were 2,770 t valued at \$1.98 million for an average of \$715 per ton. Sweden and Canada were the leading suppliers, accounting for 70% and 20% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the first quarter of 2010 were 6,130 t valued at \$7.03 million, or an average of \$1,150 per ton, compared with exports during the first quarter of 2009, which were 4,470 t valued at \$5.85 million for an average of \$1,310 per ton. Shipments to Mexico accounted for 45% of the exports; an additional 24% was shipped to Canada and 19% was shipped to China.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons and thousand dollars)

Source and product	2009										2010	
	First quarter		Second quarter		Third quarter		Fourth quarter		Total		First quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
United States and Canada, production: ^{e, 2}												
Silicon carbide ³	10,000	\$7,400	10,000	\$7,400	10,000	\$7,400	10,000	\$7,400	35,000	\$25,900	10,000	\$7,400
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	5,000	800	5,000	800	10,000	1,700	5,000	800
United States, production:												
Steel shot and grit	40,300	18,300	31,400	14,700	33,900	16,400	31,300	15,400	137,000	64,900	39,600	19,200
Other shot and grit ^{e, 4}	381	1,460	305	1,040	370	1,320	410	1,580	1,470	5,390	480	1,840
Total	40,700	19,800	31,700	15,700	34,300	17,700	31,700	17,000	138,000	70,300	40,100	21,000
United States, shipments:												
Steel shot and grit	37,300	17,000	34,700	19,100	41,300	24,600	37,500	23,000	151,000	83,700	43,400	25,600
Other shot and grit ^{e, 4}	392	1,510	307	1,050	380	1,540	408	1,690	1,490	5,800	458	2,000
Total	37,700	18,500	35,000	20,100	41,700	26,200	38,000	24,700	152,000	89,500	43,800	27,600

^eEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Includes cut wire shot and reclaimed shot and grit from primary producers.

TABLE 2
U.S. EXPORTS AND IMPORTS FOR CONSUMPTION OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES¹

(Metric tons and thousand dollars)

	2009										2010	
	First quarter		Second quarter		Third quarter		Fourth quarter		Total		First quarter	
	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²
Exports:												
Aluminum oxide:												
Crude	3,400	\$8,580	2,220	\$5,680	3,250	\$8,070	3,450	\$9,700	12,300	\$32,000	4,500	\$13,800
Ground and refined	184,000	86,500	229,000	90,500	257,000	124,000	224,000	115,000	894,000	416,000	429,000	182,000
Silicon carbide:												
Crude	3,520	5,960	3,100	5,960	4,900	6,890	5,420	7,380	16,900	26,200	5,400	7,350
Ground and refined	923	3,500	855	1,850	937	2,090	1,030	4,060	3,750	11,500	1,130	5,120
Metallic abrasives	4,470	5,850	5,630	6,070	6,900	8,360	8,920	11,900	25,900	32,200	6,130	7,030
Imports for consumption:												
Aluminum oxide:												
Crude	7,340	5,010	2,040	1,540	8,600	5,480	20,200	11,200	38,200	23,200	20,300	11,300
Ground and refined	7,810	9,040	4,170	4,940	5,420	6,340	8,600	10,200	26,000	30,500	7,950	11,300
Silicon carbide:												
Crude	11,300	7,820	10,600	7,270	12,000	6,790	25,900	11,500	59,900	33,400	14,900	8,100
Ground and refined	4,490	11,900	3,220	7,410	3,470	8,830	6,910	13,000	18,100	41,100	8,940	18,900
Metallic abrasives	2,770	1,980	3,230	3,060	3,830	2,980	5,980	4,050	15,800	12,100	11,700	5,250

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Customs value.

Source: U.S. Census Bureau.